Cell kinase activity assay based on surface enhanced Raman spectroscopy.

Journal: Spectrochim Acta A Mol Biomol Spectrosc

Publication Year: 2009

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PubMed link: 19299194

Funding Grants: CIRM Type I Comprehensive Training Program

Public Summary:
Kinases control many important aspects of cell behavior, such as signal transduction, growth/differentiation, and tumorogenesis. Current methods for assessing kinase activity often require specific antibodies, and/or radioactive labeling. Here we demonstrated a novel detection method to assess kinase activity based on surface enhanced Raman spectroscopy (SERS). Raman signal was obtained after amplification by silver nanoparticles. The sensitivity of this method was comparable to fluorescence measurement of peptide concentration. When purified kinase enzyme was used, the detection limit was comparable to conventional radio-labeling method. We further demonstrated the feasibility to measure kinase activity in crude cell lysate. We suggested this SERS-based kinase activity assay could be a new tool for biomedical research and application.

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